

1. Work requester fills out this section.

☐ Standing Work Permit

Requester: Don Lynch	Date: 6/23/05	Ext.: 2253	Dept/Div/Group: PO/Phenix
Other Contact person (if different from requester): Sal Marino			Ext.: 3704
Work Control Coordinator: Don Lynch		Start Date: 7/27/05	Est. End Date: 8/31/05
Brief Description of Work: Repair and/or replace FEM's inside North and South Muon Magnets			
Building: 1008	Room: IR	Equipment: n/a	Service Provider: PHENIX

WCC, Requester/Designee, Service Provider, and ES&H (as necessary) fill out this section or attach analysis

ES&H ANALYSIS				
Radiation Concerns	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Activation	<input type="checkbox"/> Airborne	<input type="checkbox"/> Contamination
Radiation Generating Devices:	<input type="checkbox"/> Radiography	<input type="checkbox"/> Moisture Density Gauges	<input type="checkbox"/> Soil Density Gauges	<input type="checkbox"/> X-ray Equipment
<input type="checkbox"/> Special nuclear materials involved, notify Isotope Special Materials Group			<input type="checkbox"/> Fissionable materials involved, notify Laboratory Criticality Officer	
Safety Concerns	<input type="checkbox"/> None	<input type="checkbox"/> Ergonomics	<input type="checkbox"/> Transport of Haz/Rad Material	
<input type="checkbox"/> Adding/Removing Walls or Roofs	<input checked="" type="checkbox"/> Confined Space*2A	<input type="checkbox"/> Explosives	<input type="checkbox"/> Lead*	<input type="checkbox"/> Penetrating Fire Walls
<input type="checkbox"/> Asbestos*	<input type="checkbox"/> Corrosive	<input type="checkbox"/> Flammable	<input type="checkbox"/> Magnetic Field*	<input type="checkbox"/> Pressurized Systems
<input type="checkbox"/> Beryllium*	<input type="checkbox"/> Cryogenic	<input type="checkbox"/> Fumes/Mist/Dust*	<input type="checkbox"/> Material Handling	<input type="checkbox"/> Rigging/Critical Lift
<input type="checkbox"/> Biohazard*	<input type="checkbox"/> Electrical	<input type="checkbox"/> Heat/Cold Stress	<input type="checkbox"/> Noise*	<input type="checkbox"/> Toxic Materials*
<input type="checkbox"/> Chemicals*	<input type="checkbox"/> Elevated Work*	<input type="checkbox"/> Hydraulic	<input type="checkbox"/> Non-ionizing Radiation*	<input type="checkbox"/> Vacuum
<input type="checkbox"/> Excavation	<input type="checkbox"/> Lasers*	<input type="checkbox"/> Oxygen Deficiency*	<input type="checkbox"/> Other	
* Does this work require medical clearance or surveillance from the Occupational Medicine Clinic? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No				
Environmental Concerns	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Work impacts Environmental Permit No.		
<input type="checkbox"/> Atmospheric Discharges (rad/non-rad)	<input type="checkbox"/> Land Use	<input type="checkbox"/> Soil Activation/contamination	<input type="checkbox"/> Waste-Mixed	
<input type="checkbox"/> Chemical or Rad Material Storage or Use	<input type="checkbox"/> Liquid Discharges	<input type="checkbox"/> Waste-Clean	<input type="checkbox"/> Waste-Radioactive	
<input type="checkbox"/> Cesspools (UIC)	<input type="checkbox"/> Oil/PCB Management	<input type="checkbox"/> Waste-Hazardous	<input type="checkbox"/> Waste-Regulated Medical	
<input type="checkbox"/> High water/power consumption	<input type="checkbox"/> Spill potential	<input type="checkbox"/> Waste-Industrial	<input type="checkbox"/> Underground Duct/Piping	
Waste disposition by: <input type="checkbox"/> Other				
Pollution Prevention (P2)/Waste Minimization Opportunity:	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Yes		
FACILITY CONCERNS	<input checked="" type="checkbox"/> None			
<input type="checkbox"/> Access/Egress Limitations	<input type="checkbox"/> Electrical Noise	<input type="checkbox"/> Potential to Cause a False Alarm	<input type="checkbox"/> Vibrations	
	<input type="checkbox"/> Impacts Facility Use Agreement	<input type="checkbox"/> Temperature Change	<input type="checkbox"/> Other	
<input type="checkbox"/> Configuration Control	<input type="checkbox"/> Maintenance Work on Ventilation Systems	<input type="checkbox"/> Utility Interruptions		
WORK CONTROLS				
Work Practices				
<input type="checkbox"/> None	<input type="checkbox"/> Exhaust Ventilation	<input checked="" type="checkbox"/> Lockout/Tagout Magnet	<input type="checkbox"/> Spill Containment	<input type="checkbox"/> Security (see Instruction Sheet)
<input checked="" type="checkbox"/> Back-up Person/Watch	<input type="checkbox"/> HP Coverage	<input type="checkbox"/> Posting/Warning Signs	<input type="checkbox"/> Time Limitation	<input type="checkbox"/> Other
<input type="checkbox"/> Barricades	<input type="checkbox"/> IH Survey	<input type="checkbox"/> Scaffolding-requires inspection	<input type="checkbox"/> Warning Alarm (i.e. "high level")	
Protective Equipment				
<input checked="" type="checkbox"/> None	<input type="checkbox"/> Ear Plugs	<input type="checkbox"/> Gloves	<input type="checkbox"/> Lab Coat	<input type="checkbox"/> Safety Glasses
<input type="checkbox"/> Coveralls	<input type="checkbox"/> Ear Muffs	<input type="checkbox"/> Goggles	<input type="checkbox"/> Respirator	<input type="checkbox"/> Safety Harness
<input type="checkbox"/> Disposable Clothing	<input type="checkbox"/> Face Shield	<input type="checkbox"/> Hard Hat	<input type="checkbox"/> Shoe Covers	<input type="checkbox"/> Safety Shoes <input type="checkbox"/> Other
Permits Required (Permits must be valid when job is scheduled.)				
<input checked="" type="checkbox"/> None	<input type="checkbox"/> Cutting/Welding	<input type="checkbox"/> Impair Fire Protection Systems		
<input type="checkbox"/> Concrete/Masonry Penetration	<input type="checkbox"/> Digging/Core Drilling	<input type="checkbox"/> Rad Work Permit-RWP No		
<input type="checkbox"/> Confined Space Entry	<input type="checkbox"/> Electrical Working Hot	<input type="checkbox"/> Other		
Dosimetry/Monitoring				
<input checked="" type="checkbox"/> None	<input type="checkbox"/> Heat Stress Monitor	<input type="checkbox"/> Real Time Monitor	<input type="checkbox"/> TLD	
<input type="checkbox"/> Air Effluent	<input type="checkbox"/> Noise Survey/Dosimeter	<input type="checkbox"/> Self-reading Pencil Dosimeter	<input type="checkbox"/> Waste Characterization	
<input type="checkbox"/> Ground Water	<input type="checkbox"/> O ₂ /Combustible Gas	<input type="checkbox"/> Self-reading Digital Dosimeter	<input type="checkbox"/> Other	
<input type="checkbox"/> Liquid Effluent	<input type="checkbox"/> Passive Vapor Monitor	<input type="checkbox"/> Sorbent Tube/Filter Pump		
Training Requirements (List below specific training requirements)				
PHENIX Awareness, Confined Space				
Based on analysis above, the Walkdown Team determines the risk, complexity, and coordination ratings below:			If using the permit when all hazard ratings are low, only the following need to sign: (Although allowed, there is no need to use back of form)	
ES&H Risk Level:	<input type="checkbox"/> Low	<input checked="" type="checkbox"/> Moderate	<input type="checkbox"/> High	WCC: _____ Date: _____
Complexity Level:	<input type="checkbox"/> Low	<input checked="" type="checkbox"/> Moderate	<input type="checkbox"/> High	Service Provider: _____ Date: _____
Work Coordination:	<input type="checkbox"/> Low	<input checked="" type="checkbox"/> Moderate	<input type="checkbox"/> High	Authorization to start _____ Date: _____
(Departmental Sup/WCC/Designee)				

3. Both work requester and service provider contribute to work plan (use attachments for detailed plans)**Work Plan** (procedures, timing, equipment, and personnel availability need to be addressed):

See Attached

Special Working Conditions Required:

None

Operational Limits Imposed: None

Post Work Testing Required: No

Job Safety Analysis Required: ☐ Yes ☒ NoWalkdown Required: ☒ Yes ☐ No**Reviewed by:** Primary Reviewer will determine the size of the review team and the other signatures required based on hazards and job complexity. Primary Reviewer signature means that the hazards and risks that could impact ES&H have been identified and will be controlled according to BNL requirements.

<u>Title</u>	<u>Name (print)</u>	<u>Signature</u>	<u>Life #</u>	<u>Date</u>
Primary Reviewer				
ES&H Professional				
Other				
Other				
Work Control Coordinator				
Service Provider				
	Review Done: <input type="checkbox"/> in series	<input type="checkbox"/> team		

4. Job site personnel fill out this section.

Note: Signature indicates personnel performing work have read and understand the hazards and permit requirements (including any attachments).

Job Supervisor:

Contractor Supervisor:

Workers:

Life#:

Workers :

Life#:

Workers are encouraged to provide feedback on ES&H concerns or on ideas for improved job work flow. Use feedback form or space below.

5. Departmental Job Supervisor, Work Control Coordinator/Designee

Conditions are appropriate to start work: (Permit has been reviewed, work controls are in place and site is ready for job.)

Name:

Signature:

Life#:

Date:

6. Departmental Job Supervisor, Work Requester/Designee determines if Post Job Review is required. ☐ Yes ☐ No

Post Job Review (Fill in names of reviewers)

Name:

Signature:

Life#:

Date:

Name:

Signature:

Life#:

Date:

7. Worker provides feedback.

Worker Feedback (use attached sheets as necessary)

a) WCM/WCC: Is any feedback required? ☐ Yes ☐ Nob) Workers: Are there better methods or safer ways to perform this job in the future? ☐ Yes ☐ No**8. Closeout: Work Control Coordinator (authorizing dept.) checks quality of completed permit and ensures the work site is left in an acceptable condition. (WCC can delegate clean up of work area to work supervisor)**

Name:

Signature:

Life#:

Date:

Comments:

Repair and/or replace FEM's inside North and South Muon Magnets in PHENIX IR, Bldg. 1008

South and North Muon Magnet Confined Space Entry – Class 2A: Enter the South Muon Magnet (MMS) or the North Muon Magnet (MMN) in the experimental hall and repair/replace electronic modules (FEM Cards) as indicated in the attached sketches. The detector chambers inside the MMS and MMN contain inert gas (N_2). Hazardous Atmosphere Testing is not required. The hazards are that (a) entry is made via ladder (MMS) through an opening created by removing the east vertical lamp about 11 feet above track level, or (b) through the base hatch (MMN) and the magnet has a sloping floor (35 to 35 degree from vertical) which may present the danger of a slip/fall (about 6 feet elevation change down sloping floor). Though structural elements of the detector are within reach for support, further mitigation is provided by installing “steps” on the sloping floor, and adherence to the “two person” rule. When the magnet is occupied, two people must be present and within talking distance at all times.

This work is to be done by fully trained and experienced PHENIX personnel, under the supervision of Sal Marino. A properly executed and signed Confined Space Entry (CSE) Certification is required prior to entry.

Procedure

LOTO the power to the magnet coil at the power supply in 1008B. (Pearson)

Verify that no gas is flowing to the chambers. (Biggs)

Secure a ladder to the east side of the MMS. For the MMN provide a step ladder to enter via the hatch. (Marino)

Enter either magnet and install the pre-fabricated steps on the lower east lampshade panel (MMS and MMN) working from the bottom up. If access is required to any west side electronics the stairs to that side will also be installed. Work is limited to the bottom three sectors of stations 2 and 3 and the lower crates of the vertical sectors that may be easily reached from the steps. (Marino, MuTr experts)

Enter the magnet and remove/repair/replace FEM components. When one person enters the other will provide backup watch at the entry opening/hatch. (MuTr experts)

Once work is complete, remove the internal steps, sweep the magnet interior for tools and personnel and remove the external access ladder. (Marino, MuTr experts)

Remove LOTTO on magnet power supply. (Pearson)